An Inventory of Biological Samples Taken in the British Columbia Groundfish Fishery During 1981

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ABSTRACT

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An inventory of biological samples taken in the British Columbia groundfish fishery during 1982 is presented. Samples are separated by species, area, time, depth range, sex and type of sample. A total of 97 samples of 15 species were collected. Sampling by species generally reflected abundance in landings except where special research considerations applied.

Key words: Groundfish fishery, biological sampling.

RÉSUMÉ

Venables, N. L. 1984. An inventory of biological samples taken in the British Columbia groundfish fishery during 1981. Can. Data Rep. Fish. Aquat. Sci. 448: iii + 12 p.

Le présent inventaire porte sur les échantillons biologiques prélevés en 1981 au cours de la pêche du poisson de fond en Colombie - Britannique. Les 97 échantillons recueillis sont divisés selon les 15 espèces rencontrées, la zone, le temps, les écarts de profondeur, le sexe et le genre d'échantillons. L'échantillonnage selon l'espèce reflète généralement l'abondance dans les débarquements sauf lorsqu'il y a des considérations scientifiques particulières.

Mots-clés: pêche du poisson de fond, échantillonnage biologique.

INTRODUCTION

The collection of biological samples from the groundfish fishery off the west coast of Canada is an important function of the Pacific Biological Station's Groundfish Program. Biological sampling is fundamental to our understanding of the dynamics of groundfish stocks, especially considering the extended longevity of many of these species (e.g. rockfish, sablefish, flatfish and dogfish).

Sampling is conducted primarily at the ports of Vancouver, Steveston and Prince Rupert, and at sea aboard commercial fishing vessels. Annual reports of these activities have been published in this format since 1970.

During 1981, port sampling did not reflect true changes or trends in the groundfish fishery. During portions of 1981, there was either too little or no sampling coverage of groundfish landings to primary ports due to personnel staffing problems. Most of our small port sampling staff consisted of newly acquired and relatively untrained personnel. For a good portion of the year considerable time was spent training these new staff members in the collection of statistics and biological samples representing a large number of groundfish species. Throughout the year, the Domestic Observer (sampling at sea) Program increased its activity. This did help somewhat to offset the low number of port samples collected from certain parts of the fishery.

Fishing effort directed by the sablefish fleet intensified again this year with the result that the allotted sablefish quota was taken by the first week in October. The bulk of these landings consisted mainly of dressed-frozen product. A number of fresh sablefish samples were, however, collected by Pacific Biological Station representatives at sea on board commercial fishing vessels.

The international joint venture hake fishery in major area 3C continued on the same large scale as took place last year. Most of the larger vessels in the Vancouver-Steveston trawl fleet participated in this fishery for a good portion of the latter part of the year. Again, as in 1980, this resulted in fewer trawl landings from a number of other major areas during the summer and early fall period.

During 1981, there were 97 biological samples collected from the British Columbia commercial groundfish landings at various ports. This was a very marked decrease (64%) from 1980. Of the 24,228 fish sampled, nearly all were processed for length measurements and sex data, and 14,143 for age determination through the collection of scales, otoliths, fin sections or combinations of these structures. Maturity state readings were collected from most rockfish and roundfish samples, while parabranchial-lesion incidence was noted in the majority of Pacific cod and walleye pollock samples. Observations relative to stomach contents were indicated in most samples collected for all goundfish species in 1981. The following figures indicate a percentage breakdown by species of the number of samples collected at ports of landings; rockfish--23%; Pacific cod--24%; walleye pollock--20%; flatfish--11%; lingcod--9%; Pacific hake--7%; spiny dogfish--4%; and

sablefish--2%. A summary table of samples collected from groundfish landings by species and International (Major) Area (Fig. 1) is given in Table 1.

ACKNOWLEDGMENTS

The collection of statistics and biological samples from the commercial fishery remains a cooperative effort between port samplers, fishermen and processors. The Pacific Biological Station port sampling staff would like to express their sincere thanks to fishermen and processors for their time and assistance during 1981.

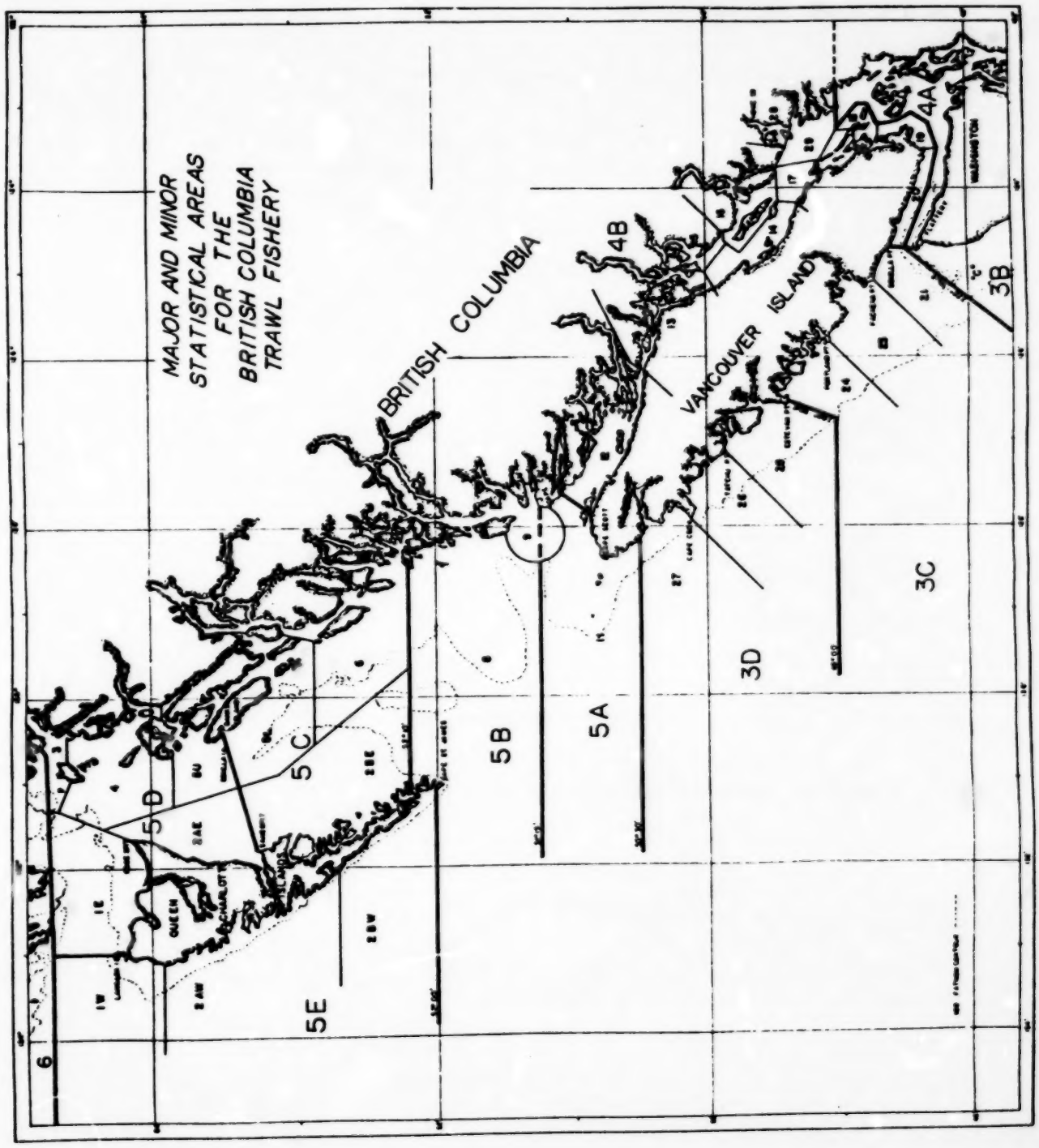
MAJOR AND MINOR
STATISTICAL AREAS
FOR THE
BRITISH COLUMBIA
TRAWL FISHERY
BRITISH COLUMBIA
VANCOUVER ISLAND
5E
5D
5C
5B
5A
4B
4A
3D
3C
3B

Fig. 1.

Table 1. Number of samples collected from British Columbia groundfish landings in 1981, by species and International Area.

Species	Area								Total
	3C	3D	4B	5A	5B	5C	5D	5E	
Flatfish									
Dover sole	2	-	1	-	-	-	1	-	4
English sole	-	-	-	-	-	-	1	-	1
Petrale sole	2	1[a]	-	1	-	-	-	-	4
Rock sole	-	-	-	-	1	1	-	-	2
Rockfish									
Canary rockfish	-	-	-	-	1	-	-	-	1
Pacific ocean perch	-	-	-	1	4	4	-	2	11
Silvergray rockfish	-	-	-	1	5	-	-	-	6
Yellowmouth rockfish	-	-	-	-	1	-	-	2	3
Yellowtail rockfish	-	-	-	-	1	-	-	-	1
Roundfish									
Lingcod	2	-	2	2	3	-	-	-	9
Pacific cod	3	-	10	1	2	-	7	-	23
Pacific hake	-	-	7	-	-	-	-	-	7
Sablefish	2	-	-	-	-	-	-	-	2
Walleye pollock	-	-	10	-	-	-	9	-	19
Selachii									
Spiny dogfish	1	-	3	-	-	-	-	-	4
Total	12	1	33	6	18	5	18	4	97

[a]Sample was taken from two areas (3C and 3D).

Table 2. Dover sole (Microstomus pacificus) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
3C	Jan	210-230	32	268	300	32	268	300	VF6401-6700
	Mar	155-264	245	55	300	245	55	300	VF7601-7900
4B	Sep	70-100	100	200	300	100	200	300	VF7901-8200
5D	Sep	62-90	41	219	260	41	219	260	PRF4405-4664
Total fish sampled					1,160			1,160	

Table 3. English sole (Parophrys vetulus) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
5D	Sep	40	77	223	300	77	223	300	PRF4105-4404
Total fish sampled					300			300	

Table 4. Petrale sole (Eopsetta jordani) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	U	T	Age (otolith) M	F	U	T	Serial number
3C	Jan	210-230	259	41	-	300	259	41	-	300	VF6701-7000
	Mar	155-264	148	151	1	300	148	151	1	300	VF7301-7600
3C-3D	Mar	160-248	147	153	-	300	147	153	-	300	VF7001-7300
5A	Sep	48-72	55	244	-	299	55	244	-	299	VF8201-8500
Total fish sampled						1,199				1,199	

Table 5. Rock sole (Lepidopsetta bilineata) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
5B	Sep	52-72	29	271	300	29	271	300	VF8501-8800
5C	May	30-45	36	222	258	36	222	258	PRF3805-4064
Total fish sampled					558			558	

Table 6. Canary rockfish (Sebastes pinniger) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
5B	Mar	78-86	182	95	277	58	42	100	WNRF3401-3500
Total fish sampled					277			100	

Table 7. Pacific ocean perch (Sebastes alutus) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
5A	July	109-114	227	81	308	154	46	200	WNRF4001-4200
5B	Jun	118-136	150	150	300	100	100	200	WNRF3801-4000
	Apr	138-180	16	320	336	2	98	100	PRRF4166-4265
	May	130-200	109	216	325	30	70	100	PRRF4266-4365
	July	120-190	115	185	300	75	125	200	PRRF4766-4965
5C	Jun	138-160	153	162	315	100	100	200	PRRF4566-4765
	July	110-120	119	181	300	79	121	200	PRRF4966-5165
	Aug	92-102	191	109	300	130	70	200	PRRF5166-5365
	Sep	87-109	158	142	300	107	93	200	PRRF5366-5565
5E	May	120-200	92	220	312	49	151	200	PRRF4366-4565
	Sep	150-160	173	127	300	103	97	200	PRRF5566-5765
Total fish sampled					3,396			2,000	

Table 8. Silvergray rockfish (Sebastes brevispinis) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length M	Length F	Length T	Age (otolith) M	Age (otolith) F	Age (otolith) T	Serial number
5A	Mar	95-102	42	28	70	42	28	70	VNRF3501-3570
5B	Sep	52-72	120	128	248	94	106	200	VNRF4801-5000
	Aug	42-70	95	105	200	95	105	200	VNRF4401-4600
	Sep	64-72	134	148	282	98	102	200	VNRF4601-4800
	Mar	78-86	135	92	227	56	44	100	VNRF3301-3400
	Apr	120-158	261	44	305	89	11	100	VNRF3701-3800
Total fish sampled					1,332			870	

Table 9. Yellowmouth rockfish (Sebastes reedi) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	Length-maturity F	Length-maturity T	Age (otolith) M	Age (otolith) F	Age (otolith) T	Serial number
5B	Apr	120-158	228	79	307	63	37	100	VNRF3601-3700
5E	Oct	108-110	167	132	299	110	89	199	PRRF5766-5965
		110	122	178	300	82	118	200	PRRF5966-6165
Total fish sampled					906			499	

Table 10. Yellowtail rockfish (Sebastes flavidus) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length M	Length F	Length T	Age (otolith) M	Age (otolith) F	Age (otolith) T	Serial number
5B	Aug	46-57	185	132	317	116	84	200	WNRF4201-4400
Total fish sampled					317			200	

Table 11. Lingcod (Ophiodon elongatus) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length M	Length F	Length T	Age (fin ray) M	Age (fin ray) F	Age (fin ray) T	Serial number
3C	Sep	36-46	146	55	201	146	55	201	-
	Jun	33-57	156	103	259[a]	156	103	259	-
4B	July	-	59	217	276[a]	59	217	276	8225-8500
	Sep	-	361	271	632[a]	361	271	632	8801-9434
5A	Sep	44-65	137	88	225	137	88	225	-
	May	30-65	214	108	322[a]	214	108	322	7903-8224
5B	July	45-70	129	148	277[a]	129	148	277	-
	Jun	50-80	164	136	300[a]	164	136	300	8501-8800
	Sep	60	69	146	215	69	146	215	-
Total fish sampled					2,707			2,707	

[a]Maturity data not collected.

Table 12. Pacific cod (Gadus macrocephalus) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length-maturity-cyst M	F	U	T	Age (scale) M	F	U	T
3C	May	42-50	57	63	-	120[a]	57	63	-	120
	Apr	34-36	125	97	-	222	73	47	-	120
	Sep	36-46	65	55	-	120[a]	65	55	-	120
4B	Jan	45-55	55	65	-	120	55	65	-	120
	July	47-54	67	53	-	120[a]	67	53	-	120
	Aug	47-54	60	60	-	120[a]	60	60	-	120
		44-58	51	69	-	120	51	69	-	120
	Oct	44-60	50	70	-	120	50	70	-	120
	Nov	47-67	62	58	-	120	62	58	-	120
		46-67	62	58	-	120	62	58	-	120
		48-70	59	61	-	120[a]	59	61	-	120
	Dec	42-65	64	55	-	119	64	55	-	119
	Jan	37-50	304	133	-	437	-	-	-	-
5A	May	60-64	58	62	-	120[a]	58	62	-	120
5B	Sep	52-72	53	67	-	120	53	67	-	120
	Mar	78-86	58	73	-	131	58	73	-	131
5D	May	10-14	56	64	-	120	56	64	-	120
	Sep	48-70	51	67	2	120[a]	51	67	2	120
	July	38-55	50	70	-	120[a]	50	70	-	120
	Oct	30-60	73	47	-	120[a]	73	47	-	120
	Sep	45-65	51	69	-	120[a]	51	69	-	120
		42-48	48	72	-	120[a]	48	72	-	120
	Nov	60	61	59	-	120[a]	61	59	-	120
Total fish sampled						3,189				2,650

[a]Maturity data not collected.

Table 13. Pacific hake (Merluccius productus) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T
4B	Feb	40	118	186	304	-	-	-
	Dec	50	199	121	320[a]	-	-	-
	Feb	50-70	138	162	300	-	-	-
		45	120	191	311	-	-	-
	Mar	90-95	207	4	211	-	-	-
		100	342	8	350	-	-	-
	Jan	70	326	81	407	-	-	-
Total fish sampled					2,203			

[a]Maturity data not collected.

Table 14. Sablefish (Anoplopoma fimbria) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T
3C	Sep	36-46	104	196	300	104	196	300
	Apr	180-188	50	50	100[a]	50	50	100
Total fish sampled					400			400

[a]Special sample of small fish.

Table 15. Walleye pollock (Theragra chalcogramma) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length-maturity-cyst M	F	T	Age (fin ray) M	F	T	Serial number
48	Jan	37-50	304	133	437	-	-	-	-
		35-60	114	88	202	57	43	100	P62401-62500
		35-60	132	164	296	42	58	100	P62601-62700
	Mar	100-125	99	156	255	29	71	100	P62801-62900
		90-95	161	97	258	-	-	-	-
		62-86	49	181	230	-	-	-	-
		78-85	41	209	250	14	86	100	P62901-63000
		75-82	107	143	250	41	59	100	P63001-63100
		100	130	130	260	39	61	100	P62701-62800
	Jan	40	129	74	203	66	34	100	P62501-62600
50	Jun	39-63	66	200	266	22	78	100	P52480-52579
	Sep	54-80	99	151	250	38	62	100	P52780-52879
	Jan	44-50	86	119	205	42	58	100	P52379-52478
	Jun	38-50	127	137	264	51	49	100	P52580-52679
	Sep	60-70	48	202	250	19	81	100	P52680-52779
	Oct	40-58	84	166	250	34	66	100	P52880-52979
		30-60	88	162	250	38	62	100	P52980-53079
		38-56	-	-	264	-	-	-	-
	Nov	60-80	116	134	250	50	50	100	P53080-53179
Total fish sampled					4,890			1,500	

Table 16. Spiny dogfish (Squalus acanthias) samples taken during 1981.

Area	Month	Depth (fm)	Number sampled: Length M	F	T
3C	Apr	50-65	61	343	404
48	Dec	42-65	30	373	403
	Nov	50-60	40	229	269
	Dec	60	59	259	318
Total fish sampled					1,394